

Appl. No. 10/018,606
Amdt. dated December 23, 2004
Reply to Office action of August 23, 2004

REMARKS

Reconsideration is respectfully requested. Claims 1-13 and 15-26 are present in the application. Claims 1 and 13 are amended herein. Claim 14 was canceled.

STATUS OF THE CLAIMS

Claim 14 was canceled in a response to office action which is of record in the PAIR IFW records as of April 24, 2004. The Examiner indicated in the advisory action of May 18, 2004, that the amendment would not be entered. Applicant filed a Request for Continued Examination which is of record in the PAIR IFW as of June 16, 2004. In the Request for Continued Examination, it was requested that the previously not-entered amendment be entered. Accordingly, claim 14 should be noted as having been canceled and the state of the claims that were examined should have been those of the April 24, 2004, response that was entered on filing the RCE.

RESPONSE TO SUBSTANTIVE EXAMINATION

The Examiner rejects claim 13, 15, and 16 under 35 §U.S.C. 112 as being indefinite. "Regarding claim 13, the applicant states '...it is possible to change at least one device constant of a resistor, capacitor, and an inductor...'. The Examiner requests correction or clarification. The applicant wishes to clarify by pointing out that the term "device constant" is known in the art to describe characteristics of a device. For

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example, a capacitance time constant is RC and an inductor time constant is L/R.

The Examiner states "the capacitor", and the "the resistor" recited in claims 15 and 16 respectively lack sufficient antecedent. Applicant has amended the claims to clarify that the impedance is what is being referred to. Withdrawal of the rejection is believe to be warranted and is respectfully requested.

Claims 1, 4-7, 9, 10, 12, 13, 17-22, 24 and 25 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hwu et al. U.S. 6,501,363. Applicant respectfully traverses. The Examiner states "Hwu et al. discloses a transformer and the applicant discloses an inductor", and that "it is known to those skilled in the art that when multiple paths are provided, and element can operate as a transformer." Regarding applicant's claim 1 and claims 4-7, 9 and 10 which depend therefrom, which are illustrated in, for example, applicant's Fig. 4, the claims and the figure do not illustrate multiple conductive paths. Conductor 122 is not a path as it has a free open end. In order to highlight this aspect of the invention, applicant has amended claim 1 by adding the wording "the other conductor having an unconnected end".

Claims 1 and 13 include the limitation "two conductors are insulated one from the other, and are connected with each other at one opposite end". Claim 25 includes the limitation "said

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second conductor connected to said first conductor at one end thereof". Hwu et al.'s windings are not connected at opposite ends. They merely terminate the same ends at the same common ground plane. The Hwu et al. document teaches economy of design by having the winding share a common ground. Hwu's first embodiment shares a common via to attach to ground, the same or corresponding ends.. Hwu's second embodiment attaches each winding to ground using two different vias. In both cases the object is the same; to attach one terminal of each winding to ground. One skilled in the art would look to Hwu and see a transformer comprising two windings, connected at both ends to separate branches of a circuit, on a chip made to occupy a small area due to Hwu et al.'s use of the same ground plane.

One skilled in the art would not be motivated to use Hwu et al.'s teaching to try what applicant has, and would not be able to use the reference to arrive at applicant's invention as claimed. The problem sought to be solved by Hwu et al. and the problem applicant has solved are different. In column 1, lines 32-33, Hwu et al. describe the "typical designs of coplanar transformers are found to occupy a large area of a chip on which they are fabricated". Although not specifically stated as the solution, Hwu et al. connect both windings to the same ground plane to save space. Typically a transformer has one or more windings having a different number of turns "for the purpose of voltage, signal or impedance transformation" (col. 1, lines 20-

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21). Hwu et al. makes no suggestion to make the windings the corresponding shape. Figs. 1A and 2A clearly show adjacent windings of unequal number of turns. They are not the same shape. Applicant has amended claims 1 and 13 to include the limitation "the two conductors having corresponding shape". Claim 25 includes "a second conductor being substantially the corresponding shape as said first conductor." Further, Hwu et al.'s teaching includes "The top winding is referred to the primary winding for illustration purposes as it is known in the art that either winding of a transformer can be interchangeably used as a primary or secondary winding." (col. 3, lines 63-67). This teaches away from applicants specific ordering of parts as positioned on the substrate in order to reduce eddy currents induced on a semiconductor substrate. The specific ordering is included in the claim language. Independent claims 1, 13 and 25 are therefore considered to be in condition for allowance. Claims 4-7, 9, 10 & 12, and claims 7-22 & 24 respectively depend from and include all the limitations of claims 1 and 13. They are therefore also considered to be in condition for allowance. Allowance is respectfully requested.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hwu et al. U.S. 6,501,363 in view of Mizoguchi U.S. 5,583,474. Applicant respectfully traverses. As discussed, claim 1 from which claim 2 depends, is considered to be in condition for allowance. Mizoguchi provides no teaching

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to overcome Hwu et al.'s shortcomings to arrive at applicant's invention as claimed.

The Examiner rejects claims 3, 8, 11, and 23 under 35 U.S.C. 103(a) as allegedly being unpatentable over Hwu et al. U.S. 6,501,363 in view of applicant's own admission. Applicant respectfully traverses. The Examiner states "Applicant admits on page 5 last full paragraph, and on page 6 line 1-3 that it has been known in the art to connect [two by connecting] an inner end of one conductor with an outer end of another conductor to secure a larger inductance." This is an incorrect interpretation of applicant's specification. Applicant is describing applicant's own invention here and how it has been experimentally confirmed, by applicant's invention, how it is possible to secure further inductance. Applicant is not admitting prior art in the section referred to by the Examiner. Applicant is discussing the applicant's own invention process. The applicant feels the rejection should be withdrawn, and that claims 3, 8, 11, and 23 should be allowed. Reconsideration and allowance is respectfully requested.

The Examiner rejects claims 16, 15, and 26 under 35 U.S.C. §103(a) as being unpatentable over Hwu et al. U.S. 6,501,363 in view of Eberhardt U.S. 5,461,353. Applicant respectfully traverses. Eberhardt discloses an inductor constructed into a multi-layer printed circuit board. The inductance is adjustable by changing the effective number of coils. Column 4 lines 23-

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25 reads "In the first state inductor 400 acts as a $3\frac{1}{2}$ turn coil, while when the transistor 408 is in the second state coil 400 acts as a $4\frac{1}{2}$ turn coil." Applicant invention makes possible inductance adjustment in a very different way. As discussed in applicant's disclosure the inductance of the first conductor is affected by the characteristics of the other conductor connected to the inductor conductor. The end of the other conductor, opposite the end connected to the inductor conductor, is terminated with a predetermined impedance element, as claimed in claim 13. Claim 16 specifically claims the impedance element is a resistor formed of a channel of an FET made of a semiconductor layer formed within a semiconductor substrate. Claim 15 specifically claims the impedance element is a capacitor formed of a variable capacitance diode made within a semiconductor substrate. Claim 26 claims the second conductor has a second end connected to one of a ground connection, a variable capacitance diode and a FET. Eberhardt's adjustment means functions differently, is a direct and gross adjustment of the inductance, and is intended for a printed circuit board, not used on a semiconductor substrate. Applicant claims an adjustment means not directly connected to an inductor conductor, it allows for finer, continuous adjustment, and can be incorporated into a semiconductor substrate. Reconsideration and allowance of the claims is respectfully requested.

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In light of the above noted amendments and remarks, this application is believed in condition for allowance and notice thereof is respectfully solicited. The Examiner is asked to contact applicant's attorney at 503-224-0115 if there are any questions.

Respectfully submitted,


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